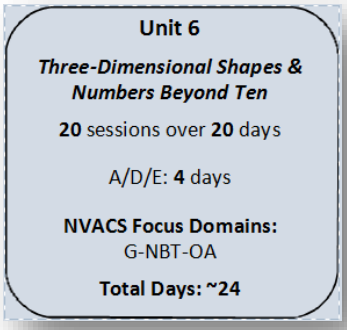
Kindergarten Unit 6: Three-Dimensional Shapes & Numbers Beyond Ten

Big Conceptual Idea: K-6 Progression on Geometry (pp. 1-7) K-5 Progression on Number and Operations in Base Ten (pp. 1-5) K-5 Progression on Counting and Cardinality and Operations and Algebraic Thinking (pp. 1-11)



Kindergarten Curriculum Pacing Framework: Balanced Calendar

Read the Bridges Unit Overview/Introduction for Unit 6 pp. i-vi. Read each Module Overview for the current week's sessions, and the current Session Summary along with details for the teaching of each session as you work through Unit 3. These Introduction/Overview/Summary sections provide focus, clarity, vocabulary, definitions, and examples for the "big mathematical ideas and understandings" critical to Kindergarten. This information will support your professional decision-making within the Sessions and Modules as needed.

Mathematical Background: Read Bridges Unit 6 Overview and Introduction (pp. i-vi)	Unit Essential Questions for the Teacher: How do I support my students' use of precise mathematical vocabulary to describe similarities and differences among two-dimensional and three-dimensional shapes? How do I extend understanding and number sense of 5 and combinations within 5 to explore number sense of 10, and then to 10 and some more?

Instructional note:
Unit 6 extends the development of spatial reasoning into comparisons of two-dimensional and three-dimensional shapes. According to the *K-6 Progression on Geometry* document linked above , "…the three most important goals for elementary geometry: Geometric shapes, their components (e.g. sides, angles, faces), their properties, and their categorization based on those properties; Composing and decomposing geometric shapes; Spatial relations and spatial structuring." The first two Modules of Unit 6 continue to provide opportunities for students to establish foundations for each of these understandings. Students are expected to name, sort, locate, describe by attributes, and construct two-dimensional and three-dimensional shapes. This work also supports *Mathematical Practices 7 Look for and make use of structure*, *Mathematical Practice 3 Construct viable arguments and critique the reasoning of others*, *Mathematical Practice 4 Model with mathematics*, and *Mathematical Practice 6 Attend to precision* (NVACS, 2010, pp.6-8).

There is also a heavy focus in Unit 6 on the connections and relationships critical to the development of early number sense and operations and algebraic thinking. The interactions within this *Unit* are opportunities for students to build "procedural fluency" (flexibility, accuracy, efficiency, and appropriateness – see NVACS p.6) with number combinations within 5 and flexible and sophisticated use of strategies. Understanding is extended to writing equations with careful attention given to the explicit connection from models to written equations. Numbers within 10 and then ten and some more are also explored, laying foundational understanding for the base ten system. Flexible understanding of 1s, 5s, and 10s is encouraged and reinforced by relating known understanding of number to money (pennies, nickels, dimes), and to a variety of other models and tools (frames, cubes, craft sticks, fingers, number racks, links, collections, number lines, the calendar grid, etc.). Explicit connections and relationships, throughout this last quarter, provide opportunity for students to solidify the foundational skills and strategies of subitizing, counting, numeral writing, one-to-one tagging, forward and backward counting, organizing, quantity, counting on, and using the five-structure. The construction of algebra foundations are supported with questions of, "How many more?" or "How many in all?" This conceptual understanding of 5 and combinations within 5, along with the geometric concepts and spatial reasoning also developed, lay the beginning mathematical foundations for all higher level mathematics.

The mathematical content of Unit 6:
Children construct understandings in connected and integrated ways, not as isolated, individual pieces. Therefore, continually ask students to explain how they are problem solving ("How did you know?", "What made you think that?", etc.) so you can make explicit the connections students are already making from previous learning, strengthen the synaptic connections being constructed, and encourage the continuance of this sense-making behavior (NVACS, 2010, p. 6).

- Support and instruct to the development of the new big mathematical ideas of:
  - Circle- a two-dimensional (flat) shape made by drawing a curve that is always the same distance from a point called the center.
  - Triangle- a two-dimensional (flat) shape with 3 sides.
  - Rectangle- a two-dimensional (flat) shape with 2 pairs of parallel sides (4 sides total) and 4 right angles.
  - Square- a two-dimensional (flat) shape with 4 congruent sides and 4 right angles.
  - Hexagon- a two-dimensional (flat) shape with 6 sides.
  - Trapezoid- a two-dimensional (flat) shape with 4 sides, exactly 1 pair of which are parallel.
  - Rhombus-a two-dimensional (flat) shape with 4 congruent sides.
  - Cube- a three-dimensional shape (solid) whose 6 faces are all squares.

- Cone- a three-dimensional shape (solid) with a circular or elliptical base and a curved surface that tapers to the vertex.
- Sphere- a three-dimensional shape (solid) constructed so that every point of the surface is the same distance from a point called the center.
- Cylinder- a three- dimensional shape (solid) with one curved surface and two congruent flat ends that are circular or elliptical.
- Edge – (1) Any side of a polyhedron's faces. (2) A line segment or curve where two surfaces of a geometric solid meet. (e.g. The edge is the circular portion or circumference of the base of a cone).
- Face – A flat surface on a 3-dimensional figure. Some special faces are called bases. More generally, any 2-dimensional surface on a 3-dimensional figure.
- Surface – The boundary of a 3-dimensional object. The part of an object that is nest to the air. Common surfaces include the top of a body of water, the outermost part of a ball, and the topmost layer of ground that covers the earth.
- Pyramid – A polyhedron made up of any polygonal region for a base, a vertex (apex) not in the plane of the base, and all of the line segments with one endpoint at the apex and the other on an edge of the base. All faces except perhaps the base are triangular. Pyramids get their name from the shape of their base.
- Rectangular prism – A prism with rectangular bases. The four faces that are not bases are either rectangles or parallelograms. For example, a brick models a rectangular prism in which all sides are rectangles.
- Triangular prism – A prism whose bases are triangles.
- Vertex or corner – The point at which the rays of an angle, the sides of a polygon, or the edges of a polyhedron meet. Plural is vertexes or vertices.

- Watch for students' attempts at thinking about and using these new strategic behaviors/strategies to demonstrate their emerging understandings of the big mathematical ideas:
  - Drawing shapes
  - Constructing shapes
  - Writing equations
  - Using the five and/or ten-structure

Over time, with supportive and scaffolded instruction and interactions, students come to more precise understandings of geometry; as well as, develop appropriate precision with mathematics content and vocabulary. Intentionality with the context and range of numbers students work with supports number sense development and expansion.

On-going enrichment:

- Continue noting the Skills Across the Grade Level chart in the Introduction section (Unit 6 pp. iv-v). Please note the standards for K.CC and K.G that are benchmarked to be secure by the end of this unit. This is important information for those day-to-day professional instructional decisions you have to make within each Session as to what discussions or activities to extend or cut short or emphasize or skip or, etc.
- Expect all students to engage in the math.

Essential Academic Vocabulary Use these words consistently during instruction.			
Essential Academic Vocabulary: (first time explicitly taught) *indicates Word Resource Cards are available in the materials	Review Vocabulary: (Vocabulary from Number Corner or prior units)		
cone* cube* cylinder* edge* face* surface* estimate* pyramid* rectangular prism* triangular prism * dime* expression*	*one*, two, three,* *four, five,* *ones** *tens** *equation** *addition* *add** *more** *less**	*between** *circle** *triangle** *square** *rectangle** *hexagon** *rhombus** *trapezoid** *attribute**	*sphere** *three-dimensional (3-D) shape** *two-dimensional (2-D) shape** *longer than* *shorter than* vertex or corner* *penny** *less than** *greater than**

Additional terminology that students may need support with: sort, solid, short, tall, combinations, problem, in all, compare*, flat.

Standards listed in **bold** indicate a focus of the lesson.

NVACS (Content and Practices)	Mathematical Development of the Big Idea	Instructional Clarifications & Considerations
Module 1- Session 1: Mystery Bag Sorting		
K.CC.1 K.MD.3 K.G.1 K.G.2 K.G.3 K.G.4 MP.1 MP.7	Access Prior Learning and Connections to Future Learning: • Describe and identify objects in the environment using geometric shape names, and identify shapes regardless of orientation or size were addressed in Unit 5. • Use informal language to describe the parts and attributes of 2-D and 3-D shapes, as well as the similarities and differences between various 2-D and 3-D shapes are addressed in Units 5 and 6. • Identify shapes as two-dimensional or three-dimensional is reinforced from Unit 5. Developing the Big Idea and key Strategic Behaviors: • classifying shapes • identifying shapes by their defining attributes (2-D and 3-D) Secure: • naming shapes	Guiding Questions: • What shapes can we see in our world? • What makes shapes different from each other? • How can we sort shapes? How can a shape be described? • What is the difference between a 2-D and 3-D shape? Instructional Notes: • Visual models are a variety of 2-D and 3-D shapes which you have collected (save these shapes also for future Sessions). • For 2-D shapes, consider using the Bridges Shape Cards and/or the WCSD Shape options. The traced footprint of a 3-D shape is what creates the 2-D shape. The interior is not part of the shape, only the line segments creating the outline for the shape. • Due to possible confusions with shapes and attributes, skipping p. 1 in the Student Book is recommended. • Step 12 - 2-D squares do not have faces only 3-D shapes can have faces. Instead, for combined collections of 2-D and 3-D shapes consider sorting by: shapes that have thickness and shapes that do not have thickness; shapes that have lines and shapes that do not have lines; shapes that have corners and shapes that do not have corners. To increase opportunities for sorting, create a sorting rule for a collection of 3-D shapes only by attributes that are consistent to 3-D shapes. • Leave the collection of objects out for students to explore. Encourage sorting and building with the collection of objects. Students might generate ideas about shapes that have vertices/corners and those without rectangular or circular. Invite students to determine which objects roll, stack or slide. • Encourage students to bring in objects from home. Students can lead the activity and gain experience describing the features of the shapes. Number Corner Connections: • September Calendar: Circle, Rectangle, Triangle, Square, Shape Posters, Shape Hunter. • Describe and identify objects in the environment using geometric shape names. This is also addressed in Sept., Nov., and Dec. • Use informal language to describe the parts and attributes of 2-D and 3-D shapes, as well as the similarities and differences between various 2-D and 3-D shapes. • Reviewed, practiced or extended to higher levels: Identify shapes regardless of orientation or size. This is addressed in the months of Sept. and Nov. Writing and Enrichment: • Students create a math journal entry about how the class grouped their shapes. Provide a sentence frame such as: These shapes go together because _____. Additional prompts: What was the rule you used to sort? Could you have sorted them another way? • Consider adding Mystery Boxes: Take off the labels or cover the labels and have students guess what they think might be in the boxes. Attend to size, corners, etc. • Student Books are introduced for the first time.
Module 1- Session 2: What is a Sphere?		
K.CC.2 K.OA.1 K.OA.2 K.G.1 K.G.3 K.G.4 MP.1 MP.2 MP.8	Access Prior Learning and Connections to Future Learning: • Use informal language to describe the parts and attributes of 2-D and 3-D shapes, as well as the similarities and differences between various 2- D and 3-D and shapes are addressed in Units 5 and 6 only. • Identify shapes as two-dimensional or three-dimensional is reinforced from Unit 5.	Guiding Questions: • What makes a circle different than a sphere? • What is the difference between a 2-D and 3-D shape? • Why do shapes have names? • What makes a sphere different than a cube? Instructional Notes: • Visual models are various spheres and circles. • For 2-D shapes consider using the Bridges Shape Cards and/or the WCSD Shape Options. • Step 2: The examples, coin or CD/DVD are not true circles. These objects have thickness and are three-dimensional. • Discuss that a sphere can roll. Consider adding a roll, stack, slide exploration here to compare 3-D shapes. Bring out the modeling clay and experiment with making spheres. *-continues on next page-*

	Developing and securing the Big Idea and key Strategic Behaviors: • classifying shapes • identifying shapes by their defining attributes (2-D and 3-D) Secure: • naming shapes	Number Corner Connections: • Expected to be secure within this unit - Use informal language to describe the parts and attributes of 2-D and 3-D shapes, as well as the similarities and differences between various 2-D and 3-D shapes. This is addressed in Sept. and Nov. months. • Reviewed, practiced or extended to higher levels - Identify shapes regardless of orientation or size. It is addressed in Sept. and Nov. months. Writing and Enrichment: • *Home Connection* p. 10 and *Home Connection* tab pp. 137-138.
Module 1- Session 3: Which Cylinder Holds More? Part 1 (omit)		
K.G.4 K.MP.1 MP.7	Access Prior Learning and Connections to Future Learning: Beginning with the Big Idea and key Strategic Behaviors: • Developing measurement concepts	Instructional Notes: • Omit all of Session 3 and Session 4 including the Cylinder Tens and Ones CHECKPOINT. • Important kindergarten concepts omitted here can be addressed by using the WCSD additional *Work Place.* This is posted on the C&I website (K-5 Mathematics). • Consider doing the organizing of cubes as a separate lesson not connected to the capacity of a cylinder, if desired or needed by particular students.
Module 1- Session 4: Which Cylinder Holds More? Part 2 (omit)		
K.G.4 MP.1	Access Prior Learning and Connections to Future Learning: Beginning with the Big Idea and key Strategic Behaviors: • developing measurement concepts	Instructional Notes: • Omit all of Session 3 and Session 4 including the Cylinder Tens and Ones CHECKPOINT. • Important kindergarten concepts omitted here can be addressed by using the WCSD additional *Work Place.* This is posted on the C&I website (K-5 Mathematics). • Consider doing the organizing of cubes as a separate lesson not connected to the capacity of a cylinder, if desired or needed by particular students.
Module 1- Session 5: Shape Detectives		
K.CC.2 K.CC.6 K.CC.7 K.MD.3 K.G.1 K.G.2 K.G.3 K.G.4 MP.1 MP.2 MP.7	Access Prior Learning and Connections to Future Learning: • Classify objects into categories and count the number objects in different categories are also covered in Unit 7. • Describe and identify objects in the environment using geometric shape names is reinforced from in Unit 5. • Identify whether the number of objects in one groups is greater, less, or equal to the number objects in another group reappears in all units. Developing and securing the Big Idea and key Strategic Behaviors: • classifying shapes • identifying shapes by their defining attributes (2-D and 3-D) Secure: • naming shapes	Guiding Questions: • What shapes can we see in our world? Where can I find shapes around my world? • How do we use shapes in daily life? • How are (shape)____ and _(shape)____ similar? different? Instructional Notes: • Visual models are shape display cards, Geoblocks, and various precise models of 3-D shapes. • Make sure you have some clear models and Geoblocks around the room. Modify preparation ideas on p. 22 to ensure clear models, such as the geometric solids, ABC cubes, dice, certain boxes, rubik's cube, tube of lip balm, etc. • Poor examples included: Cone: ice cream cones, traffic cone, teepee, party hat; Cube: unifix cube; Cylinder: drinking glasses, drinking straw, waste basket, rolled up paper, paper towel or toilet paper roll. • Focus in on the math vocabulary of edge, face, vertex, and surface. Number Corner Connections: • Expected to be secure - Classify objects into categories, count the number objects in different categories. This reappears in Oct, Dec., Jan, Feb, Mar, Apr, & May. • Describe and identify objects in the environment using geometric shape names. Addressed in Sept., Nov., and Dec. • Developing concept/skill - Identify whether the number of objects in one groups is greater, less, or equal to the number objects in another group. This reappears in Oct., Dec.., Jan., Feb., Mar., Apr., & May. Writing and Enrichment: • *Home Connection* p. 25 and *Home Connection* tab pp. 139-141.
Module 2- Session 1: I Spy		
K.CC.1 K.G.1 K.G.2 K.G.3 K.G.4 K.G.5	Access Prior Learning and Connections to Future Learning: • Model two-dimensional shapes in the world by drawing them, describe and identify objects in the environment using geometric shape names, analyze and compare two-dimensional shapes and use informal	Guiding Questions: • What shapes can we see in our world? Where can I find shapes around my world? • How can a shape be described? • What questions can I ask to find out what shape it is quickly? Instructional Notes: • Visual models are various clear models of 2-D and 3-D shapes. • Step 3 - Paper is not a flat object. *-continues on next page-*

MP.1 MP.6 MP.7	language to describe their parts and attributes and identify shapes regardless of orientation or size are all reinforces from Unit 5. Developing and securing the Big Idea and key Strategic Behaviors: • classifying shapes • identifying shapes by their defining attributes (2-and 3-D) • analyzing shapes Secure: • naming shapes	• Step 4 & 7 - Due to developing fine motor abilities and visual-spatial reasoning, drawing 3-D shapes on boards may be challenging or frustrating. Consider skipping these steps or preparing students for mistakes. Use revised shape songs in Step 4 if needed. • Step 5 - Consider placing cut out shapes and 3-D shapes in various places around the room. When the students, spy the shape, discuss it and place it in a shape museum for students explore. Ensure you have actual 2-D and 3-D models around the room. Can you spy a round object that tells time that I can use to make a 2-D shape? • Block play to explore 3-D shapes is highly recommended. Pose questions to guide academic play and discuss how shapes are used to build structures. Number Corner Connections: • Expected to be secure - Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to. Months Sep., Nov., and Dec. feature this concept. • Analyze and compare two-dimensional shapes and use informal language to describe their parts and attributes. This is also addressed in Sept. and Nov. months. • Identify shapes regardless of orientation or size (addressed in Sept. and Nov. months).
Module 2- Session 2: Two-Dimensional & Three Dimensional Shapes Bingo		
K.CC.2 K.G.1 K.G.2 K.G.3 K.G.4 K.G.5 MP.1 MP.7	Access Prior Learning and Connections to Future Learning: • Analyze and compare two-dimensional shapes and use informal language to describe their parts and attributes and identify shapes regardless of orientation or size are reinforced from Unit 5. Developing and securing the Big Idea and key Strategic Behaviors: • drawing shapes Developing to Secure: • classifying shapes • identifying shapes by their defining attributes (2 and 3-D) • analyzing shapes Secure: • naming shapes	Guiding Questions: • What are attributes or properties of a shape? • How are shapes alike and different? What makes shapes different from each other? Instructional Notes: • Visual models are Geoblocks, • For beginners in geometry, identifying a 3-D object by viewing a 2-D sketch of the 3-D object is a more challenging skill. More scaffolding is needed here and teachers might provide more experiences with actual solids that can be held and manipulated by students. • Step 3 and 8 – consider having a student find the shape in the room (having actual Geoblock available) rather than having students drawing shapes. • Consider giving each child a Bingo board. • Digital display tool found on the Bridges web site. Number Corner Connections: • Expected to be secure - Analyze and compare two-dimensional shapes and use informal language to describe their parts and attributes. This is also addressed in Sept. and Nov. months. • Identify shapes regardless of orientation or size.It is addressed in Sept. and Nov. months. Writing and Enrichment: • *Home Connection* p. 10 and *Home Connection* tab pp. 143-147.
Module 2- Session 3: Introducing Work Place 6A Build Two Shapes		
K.CC.2 K.CC.4a K.CC.4b K.G.2 K.G.4 K.G.5 MP.1 MP.6 MP.7	Access Prior Learning and Connections to Future Learning: • Model 3-D shapes in the world by building them is reinforced from Unit 5. • Read numbers for 0 to 20 and count up to 20 objects to answer "how many?" IS addressed in Units 1, 2, 3, 4, & 7. Developing the Big Idea and key Strategic Behaviors: • constructing shapes Developing to Secure: • classifying shapes • identifying shapes by their defining attributes (2-D and 3-D) • analyzing shapes Secure: • naming shapes	Guiding Questions: • Are the square polydrons really squares? • What are similarities and differences between triangle polydron pieces and triangles? • How can I use polydrons to build objects that look similar to 3-D shapes I know? Instructional Notes: • Visual models are Geoblocks, 3-D shape display cards, and polydrons. • Note: polydron sides are not straight, so be careful when using them to build 3-D shapes. • Consider having the actual geoblocks available along with the 3-D shapes cards. Number Corner Connections: • Expected to be secure - Model 3-D shapes in the world by building them. Explored in Nov. • Count up to 20 objects to answer how many? Addressed in Feb. through May. Read numbers for 0 to 20. Reappears in all months. Writing and Enrichment: • Other shapes could be built and considered for "winning" in this *Work Place*, such as a pyramid or a hexagonal prism. • See *Teacher Masters* (M2 S3 p. T4) of the *Work Place Guides for Differentiation* ideas. • Optional Unit 6 *Work Place Log* available on p. T6.

Module 2: Session 4: Introducing Work Place 6B What's My Rule? (optional)

K.MD.3 K.G.1 K.G.2 K.G.3 K.G.4 K.G.5 MP.1 MP.7	Access Prior Learning and Connections to Future Learning: • Model two-dimensional shapes in the world by drawing them is reinforced from Unit 5. • Describe and identify objects in the environment using geometric shape names, analyze and compare two-dimensional shapes and use informal language to describe their parts and attributes, and identify shapes regardless of orientation or size are all reinforced from Unit 5. Developing and securing the Big Idea and key Strategic Behaviors: • classifying shapes • identifying shapes by their defining attributes (2-D and 3-D) • analyzing shapes Secure: • naming shapes	Guiding Questions: • What shapes can we see in our world? • How can we sort shapes? How can a shape be described? Instructional Notes: Consider using WCSD Optional Work Places instead of this lesson. Use time for more free exploration with shapes, completing the assessment, and Work Places. • A soda can is not a cylinder. Note previous comments. • Plate is not a circle, Use actual 2-D images for this activity. • Suggestions for Steps 7-9 - Ask students what rule did you use to sort the objects? Are we sorting objects by how many corners? Faces? 2-D? 3-D? Roll? Stack? Slide? Number Corner Connections: • Expected to be secure - Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to. Months Sep., Nov., and Dec. feature this concept. • Analyze and compare two-dimensional shapes and use informal language to describe their parts and attributes. This is also addressed in Sept. and Nov. months. • Identify shapes regardless of orientation or size is addressed in Sept. and Nov. months. Writing and Enrichment: • See *Teacher Masters* (M2 S4 p. T7) of the *Work Place Guides for Differentiation* ideas. Child Watching and Assessments: • Three Dimensional Shapes & Their Attributes Checkpoint – observe students in *Work Places* (see p. 18 and T9). Also see reteaching suggestion in the Assessment Binder, Bridges Unit Assessments tab p. 66.

Module 2- Session 5: Introducing Work Place 6C Make It Five

K.CC.4 K.CC.5 K.OA.3 K.OA.5 MP.1 MP.2 MP.7	Access Prior Learning and Connections to Future Learning: • Identify shapes regardless of orientation or size was addressed in Unit 5. • Decompose numbers less than or equal to 10 into pairs into more than one way and record is covered in all units except Unit 4. • Represent addition with acting out situations, drawings, and questions is covered in Units 2, 3, 4, 7 & 8. Beginning with the Big Idea and key Strategic Behaviors: • writing equations Developing: • composing and decomposing • modeling addition with objects and pictures Secure: • using the five-structure	Guiding Questions: • How can I find the total when I put two quantities together? • Why is it important that I can build the number combinations for the number 5? How many ways are there to make 5 using two spins? 3 spins? 4 spins? Instructional Notes: • Visual models are cubes and shape pictures. • *Work Place* may not be an independent *Work Place* without further support. • Focus here is on making fives. • Digital display tool link found on the Bridges web site. Number Corner Connections: • Developing concept/skill - Decompose numbers less than or equal to 10 into pairs into more than one way and record. Explored in all months except Sept. • Represent addition with acting out situations, drawings, and questions. Explored in Dec.-May. • Expected to be secure - Identify shapes regardless of orientation or size is addressed in Sept. and Nov. months. Writing and Enrichment: • See *Teacher Masters* (M2 S5 p. T10) of the *Work Place Guides for Differentiation* ideas • See *Work Place Instructions* (p. T11) for game variations. • *Home Connection* p. 21 and *Home Connection* tab p. 149-152.

Module 3- Session 1: Mystery Numbers, Day 1

K.CC.1 K.CC.3 K.CC.4c K.CC.5 K.CC.6 K.NBT.1	Access Prior Learning and Connections to Future Learning: • Decompose numbers from 11 to 19 into a group of 10 and some 1s only in this unit. • Read numbers for 0 to 20 is reinforced from Units 1, 2, 3, 4, and 7.	Guiding Questions: • What is an efficient way to count an amount greater than ten? • What is a useful strategy for counting teen numbers? How can numbers be represented? *-continues on next page-*

MP.1 MP.2	Beginning with the Big Idea and key Strategic Behaviors: • using the ten-structure • composing/decomposing within 20 • counting on Developing: • understanding hierarchical inclusion within 20 Secure: • understanding cardinality • subitizing • using the five-structure	Instructional Notes: • Visual models are double ten-frame five-wise display cards, ten & more numeral display cards, fingers, and written numerals. • Allow students time to be successful in the problem solving. Number Corner Connections: • Developing concept/skill - Decompose numbers from 11 to 19 into a group of 10 and some 1s. This concept is featured in all months except Jan. and May. • Expected to be secure - Read numbers for 0 to 20. Covered in all months.
Module 3- Session 2: Mystery Numbers, Day 2		
K.CC.2 K.CC.3 K.CC.4c K.CC.5 K.CC.6 K.NBT.1 MP.1 MP.2	Access Prior Learning and Connections to Future Learning: • Decompose numbers from 11 to 19 into a group of 10 and some 1s only in this unit. • Read numbers for 0 to 20 is reinforced from Units 1, 2, 3, 4, and 7. Beginning work with the Big Idea and key Strategic Behaviors: • using the ten-structure • composing/decomposing within 20 • using counting on Developing: • using hierarchical inclusion within 20 Secure: • understanding cardinality • subitizing • using the five-structure	Guiding Questions: • What is an efficient way to count an amount greater than ten? • What is a useful strategy for counting teen numbers? How can numbers be represented? Instructional Notes: • Visual models are double ten-frame five-wise display cards, ten & more numeral display cards, fingers, and written numerals. • Allow students time to be successful in the problem solving. Number Corner Connections: • Developing concept/skill - Decompose numbers from 11 to 19 into a group of 10 and some 1s. This concept is featured in all months except Jan and May. • Expected to be secure - Read numbers for 0 to 20. Covered in all months. Writing and Enrichment: • *Home Connections* p. 10 and *Home Connection* tab pp. 153-154.
Module 3- Session 3: Introducing Work Place 6D; Roll, Add & Compare		
K.CC.2 K.CC.5 K.CC.6 K.OA.2 K.OA.3 MP.1 MP.2 MP.4	Access Prior Learning and Connections to Future Learning: • Decompose numbers less than or equal to 10 into pairs into more than one way and record is covered in all units except Unit 4. • Represent addition with acting out situations, drawings, and questions is covered in Units 2, 3, 4, 7 & 8. • Adds with sums to 10 is addressed in Units 4, 7, and 8. • Identify whether the number of objects in one groups is greater, less, or equal to the number objects in another group reappears in all units. • Read numbers for 0 to 20 is reinforced from Units 1, 2, 3, 4, 7.	Guiding Questions: • How can I use models to represent addition? • Does the order of addends change the sum? • What happens when I join quantities together? Instructional Notes: • Visual models are 0-5 number dice, cubes, and equation recording sheets. • Note Math Practices sidebar note p.13 for focus support. Number Corner Connections: • Developing concept/skill - Decompose numbers less than or equal to 10 into pairs into more than one way and record. Explored in all months except Sept. • Represent addition with acting out situations, drawings, and questions • Add with sums to 10. Addressed in months Jan.-May. • Identify whether the number of objects in one groups is greater, less, or equal to the number objects in another group. This appears in Oct., & Dec- May. • Expected to be secure - Read numbers for 0 to 20. Covered in all months. Writing and Enrichment: • See *Teacher Masters* (M3 S3 p. T1) of the *Work Place Guides for Differentiation* ideas. *-continues on next page-*

	Developing the Big Idea and key Strategic Behaviors: • counting on • composing and decomposing within 10 • counting 3 times when adding Secure: • understanding cardinality • reading numbers to 20 • comparing within 10 (magnitude)	
Module 3- Session 4: A Dime & Some Pennies		
K.CC.1 K.CC.3 K.NBT. 1 MP.1 MP.2 MP.8	Access Prior Learning and Connections to Future Learning: • Decompose numbers less than or equal to 10 into pairs into more is covered in all units except Unit 4. • Read numbers for 0 to 20 is reinforced from Units 1, 2, 3, 4, 7. Developing the Big Idea and key Strategic Behaviors: • counting on • using the ten-structure Secure: • understanding cardinality • subitizing	Guiding Questions: • How can I use models to represent addition? How can I compare one quantity to another? • Does the order of addends change the sum? • What happens when I join quantities together? Instructional Notes: • Visual models are dimes and pennies. • Consider spreading this Session over two days. • Consider adding this Session as an additional *Work Place.* Number Corner Connections: • Developing concept/skill - Decompose numbers from 11 to 19 into a group of 10 and some 1s. This concept is featured in all months except Jan. and May. • Expected to be secure - Read numbers for 0 to 20. Covered in all months.
Module 3- Session 5: Tens & Ones Checkpoint		
K.CC.3 K.CC.7 K.NBT. 1 K.OA.4 MP.1 MP.2 MP.7	Access Prior Learning and Connections to Future Learning: • Decompose numbers from 11 to 19 into a group of 10 and some 1s is only in this unit. • Identify whether the number of objects in one groups is greater, less, or equal to the number objects in another group reappears in all units. • Read numbers for 0 to 20 and count up to 20 objects to answer "how many?" is reinforced from Units 1, 2, 3, 4, 7. Developing the Big Idea and key Strategic Behaviors: • counting on • using the ten-structure	Guiding Questions: • What is an efficient way to count an amount greater than ten? • What is a useful strategy for counting teen numbers? Why is counting important? • How can numbers be represented? Instructional Notes: • Visual models are dimes and pennies. Number Corner Connections: • Developing concept/skill - Decompose numbers from 11 to 19 into a group of 10 and some 1s. This concept is featured in all months except Jan. and May. • Identify whether the number of objects in one groups is greater, less, or equal to the number objects in another group. This reappears in Oct., Dec.., Jan., Feb., Mar., Apr., & May. • Expected to be mastered/secured - Read numbers for 0 to 20. Explored in all months. • Count up to 20 objects to answer how many? Addressed in Feb.-May months. Writing and Enrichment: *Home Connections* p. 21 and *Home Connection* tab pp. 155-161. Child Watching and Assessment: • *Optional at this time:* Tens & Ones CHECKPOINT – this is the first complete written assessment of the year; teacher works with whole group (see pp. 20-21 and T5-T6). Also see scoring and reteaching suggestion in the Assessment Binder, Bridges Unit Assessments tab pp. 69-70. • Consider using this assessment aa a teacher-led *Work Place* or as an optional/additional *Home Connection.*

Module 4- Session 1: Shake Those Beans Five, Six, and Seven

K.CC.5 K.OA.1 K.OA.2 K.OA.3 MP.1 MP.2 MP.7	Access Prior Learning and Connections to Future Learning: • Decompose numbers less than or equal to 10 into pairs into more than one way and record is reinforced from all Units except Unit 4. • Represent addition with acting out situations, drawings, and questions is reinforced from Units 2, 3, 4, 7 & 8. • Identify whether the number of objects in one groups is greater, less, or equal to the number objects in another group reappears in all units. Developing the Big Idea and key Strategic Behaviors: • counting on • composing and decomposing within 10 Secure: • understanding cardinality • subitizing • using the five-structure • using hierarchical inclusion • comparing within 10	Guiding Questions: • Does the order of addends change the sum? • What happens when I join quantities together? • How can I use models to represent addition? • How many ways are there to make 5, 6, or 7 using two addends? Instructional Notes: • Visual models are red and white beans, graphs, and written equations. Number Corner Connections: • Developing concept/skill - Decompose numbers less than or equal to 10 into pairs into more than one way and record. Explored in all months except Sept. • Represent addition with acting out situations, drawings, and questions. Also explored in Dec-May. • Identify whether the number of objects in one groups is greater, less, or equal to the number objects in another group. It reappears in Oct., Dec., Jan., Feb., Mar., Apr., & May.

Module 4- Session 2: Unifix Trains & Equations Five, Six, and Seven

K.OA.1 K.OA.2 K.OA.3 K.OA.5 MP.1 MP.2 MP.7	Access Prior Learning and Connections to Future Learning: • Decompose numbers less than or equal to 10 into pairs into more than one way and record is reinforced from all Units except Unit 4. • Represent addition with acting out situations, drawings, and questions is reinforced from Units 2, 3, 4, 7 & 8. • Identify whether the number of objects in one groups is greater, less, or equal to the number objects in another group reappears in all units. Developing the Big Idea and key Strategic Behaviors: • counting on • composing and decomposing within 10 Secure: • understanding cardinality • subitizing • using the five-structure • using hierarchical inclusion • comparing within 10	Guiding Questions: • Does the order of addends change the sum? • What happens when I join quantities together? • How can I use models to represent addition? • How many ways are there to make 5, 6, or 7 using two addends? Instructional Notes: • Visual models are cubes, graphs, and written equations. Number Corner Connections: • Developing concept/skill - Decompose numbers less than or equal to 10 into pairs into more than one way and record. Explored in all months except Sept. • Represent addition with acting out situations, drawings, and questions. Explored in Dec-May. • Identify whether the number of objects in one groups is greater, less, or equal to the number objects in another group. It reappears in Oct., & Dec.-May. Writing and Enrichment: • Consider using 8, 9, and 10 recording sheets/cubes for students who are secure in using the five-structure. • *Home Connection* p. 13 and *Home Connection* tab pp. 163-167.

Module 4- Session 3: Fill It Up Five +		
K.CC.5 K.OA.1 K.OA.2 K.OA.3 MP.1 MP.2 MP.7	Access Prior Learning and Connections to Future Learning: • Decompose numbers less than or equal to 10 into pairs into more than one way and record is reinforced from all Units except Unit 4. • Represent addition with acting out situations, drawings, and questions is reinforced from Units 2, 3, 4, 7 & 8. • Identify whether the number of objects in one groups is greater, less, or equal to the number objects in another group reappears in all units. Developing the Big Idea and key Strategic Behaviors: • counting on • composing and decomposing within 10 Secure: • understanding cardinality • subitizing • using the five-structure • using hierarchical inclusion • comparing within 10	Guiding Questions: • How can benchmark numbers help me when adding? Instructional Notes: • Visual models are 0-5 number die, red and white ten-frame display cards, and graphs. Number Corner Connections: • Developing concept/skill - Decompose numbers less than or equal to 10 into pairs into more than one way and record. Explored in all months except Sept. • Represent addition with acting out situations, drawings, and questions. Explored in Dec.-May. • Identify whether the number of objects in one groups is greater, less, or equal to the number objects in another group. It reappears in Oct., Dec., Jan., Feb., Mar., Apr., & May.
Module 4- Session 4: Number Stations, Day 1		
K.CC.5 K.OA.1 K.OA.2 K.OA.3 MP.1 MP.2 MP.4 MP.7	Access Prior Learning and Connections to Future Learning: • Decompose numbers less than or equal to 10 into pairs into more than one way and record is reinforced from all Units except Unit 4. • Represent addition with acting out situations, drawings, and questions is reinforced from Units 2, 3, 4, 7 & 8. • Identify whether the number of objects in one groups is greater, less, or equal to the number objects in another group reappears in all units. Developing the Big Idea and key Strategic Behaviors: • counting on • composing and decomposing within 10 Secure: • understanding cardinality • subitizing • using the five-structure • using hierarchical inclusion	Guiding Questions: • How can benchmark numbers help me when adding? Instructional Notes: • Visual models are 0-5 dice, red and white beans, cubes, and red and white ten-frame display cards. • Consider observing students during *Number Stations* to assess skills and strategies reported on the Kindergarten Progress Report. Number Corner Connections: • Developing concept/skill - Decompose numbers less than or equal to 10 into pairs into more than one way and record. Featured in all months except Sept. • Represent addition with acting out situations, drawings, and questions. Explored in Dec.-May. • Identify whether the number of objects in one groups is greater, less, or equal to the number objects in another group. It reappears in Oct., Dec., Jan., Feb., Mar., Apr., & May.

Module 4- Session 5: Number Stations, Day 2		
K.CC.5 K.OA.1 K.OA.2 K.OA.3 MP.1 MP.2 MP.7	Access Prior Learning and Connections to Future Learning: • Decompose numbers less than or equal to 10 into pairs into more than one way and record is reinforced from all Units except Unit 4. • Represent addition with acting out situations, drawings, and questions is reinforced from Units 2, 3, 4, 7 & 8. • Identify whether the number of objects in one groups is greater, less, or equal to the number objects in another group reappears in all units. Developing the Big Idea and key Strategic Behaviors: • counting on • composing and decomposing within 10 Secure: • understanding cardinality • subitizing • using the five-structure • using hierarchical inclusion	Guiding Questions: • How can I use different combinations of numbers to represent the same quantity? Instructional Notes: • Visual models are 0-5 dice, red and white beans, cubes, red and white ten-frame display cards, and written equations. • Consider observing students during *Number Stations* to assess skills and strategies reported on the Kindergarten Progress Report. • Consider using these *Number Stations* as additional *Work Places.* Number Corner Connections: • Developing concept/skill - Decompose numbers less than or equal to 10 into pairs into more than one way and record. Explored in all months except Sept. • Represent addition with acting out situations, drawings, and questions. Addressed in Dec.-May. • Identify whether the number of objects in one groups is greater, less, or equal to the number objects in another group. It reappears in Oct., Dec., Jan., Feb., Mar., Apr., & May. Writing and Enrichment: • *Home Connection* p. 23 and *Home Connection* tab p. 169-171.

References

Battista, M. T. (2012). *Cognition-based assessment & teaching of geometric shapes*: B*uilding on students' reasoning.* Portsmouth, NH: Heinemann.

Boaler, J. (2016). *Mathematical mindsets: Unleashing students' potential through creative math, inspiring messages, and innovative teaching.* San Francisco, CA: Jossey-Bass & Pfeiffer Imprints.

Boaler, J. (n.d.). *Seeing as understanding: The importance of visual mathematics for our brain and learning.* Retrieved March 15, 2019, from https://bhi61nm2cr3mkdgk1dtaov18-wpengine.netdna-ssl.com/wp-content/uploads/2017/03/Visual-Math-Paper-vF.pdf

Carpenter, T., Fennema, E., Loef Franke, M., Levi, L., Empson, S.B. (2015). *Children's mathematics: Cognitively guided instruction* (2nd ed.). Portsmouth, NH: Heinemann.

Chapin, S. H., & Johnson, A. (2006). *Math matters: Understanding the math you teach, Grades K-8.* Sausalito, CA: Math Solutions Publications.

Council of Chief State School Officers. (2010). The Nevada Academic Content Standards. Retrieved from http://www.doe.nv.gov/uploadedFiles/nde.doe.nv.gov/content/Standards_Instructional_Support/Nevada_Academic_Standards/Math_Documents/mathstandards.pdf.

Common Core Standards Writing Team. (2015, March 6). *Progressions for the Common Core State Standards in Mathematics (draft). Grades K-5, Number and Operations in Base Ten.* Tucson, AZ: Institute for Mathematics and Education, University of Arizona.

Fosnot, C. T., & Dolk, M. (2001). *Young mathematicians at work: constructing number sense, addition, and subtraction*. Portsmouth, N.H.: Heinemann.

Fosnot, C. T., & Dolk, M. (2001). Landscape of learning. Retrieved from: http://www.contextsforlearning.com/samples/k3LandscapeofLearning.pdf

Van de Walle, J.A., Karp, K.S., & Bay-Williams, J.M. (2016). *Elementary and middle school mathematics: Teaching developmentally*. Boston, MA: Pearson.

Van de Walle, J., Karp, K., Lovin, L., & Bay-Williams, J. (2014). *Teaching student-centered mathematics: Developmentally appropriate instruction for grades Pre-K-2* (2nd ed.). Boston, MA: Pearson.